REMARKS

Status of Claims:

New claims 24-25 are added. Thus, claims 1-25 are present for examination.

Claim Rejections:

Claims 1-4, 6, 7, 11-15, 17, 18, 22, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al. (U.S. Patent Number 5,919,532) (hereinafter Sato).

Claims 8, 9, 10, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato.

Claims 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Takizawa et al. (U.S. Patent Number 6,573,964 B1) (hereinafter Takizawa).

With respect to claims 1-23, as amended, the rejections are respectfully traversed.

Independent claim 1, as amended, recites a method of fabricating an integrated color filter for a liquid crystal display (LCD), comprising:

> "providing a substrate;
>
> forming respective gate lines and signal lines on the substrate, wherein the plurality of gate lines and signal lines define respective pixel areas;
>
> forming a plurality of switching elements electrically connected to the signal lines and gate lines for the pixel areas;
>
> forming a protruding pattern on the gate lines, the signal lines, and the switching elements to define respective color filter unit areas;
>
> applying colored resin to form respective color filter units in the color filter unit areas defined by the protruding pattern, the respective color filter units having respective top surfaces with edge portions that are **substantially planar** with respective edge portions of a top surface of the protruding pattern; and

forming respective pixel electrodes on the respective top surfaces of the respective color filter units and on the respective edge portions of the top surface of the protruding pattern."

A method of fabricating an integrated color filter for a liquid crystal display including the above-quoted features has the advantage that a protruding pattern is formed on gate lines, signal lines, and switching elements to define respective color filter unit areas. Also, colored resin is applied to form respective color filter units in the color filter unit areas defined by the protruding pattern, and the respective color filter units have respective top surfaces with edge portions that are **substantially planar** with respective edge portions of a top surface of the protruding pattern. By forming respective color filter units having top surfaces with edge portions that are **substantially planar** with respective edge portions of a top surface of the protruding pattern, an amount of material required for respective pixel electrodes that are formed on the color filter units and the protruding pattern can be reduced, because the pixel electrodes can be formed directly across the **substantially planar** surfaces and additional material for the pixel electrodes is not needed to fill in a spacing between the top surfaces of the color filter units and a top surface of the protruding pattern. (Specification; paragraphs [0013] and [0029]; FIG. 4, references 21', 32, and 33).

Sato neither discloses nor suggests a method of fabricating an integrated color filter for a liquid crystal display including the above-quoted features. In the active matrix substrate of Sato, a water-repellent organic resin protection film 11 is formed to cover TFTs 3, gate bus lines 15, and source bus lines 16. (Sato; FIG. 1; column 23, lines 60-62). Then, in the active matrix substrate of Sato, three types of hydrophilic R, G, and B color ink are applied to respective predetermined regions of a substrate surrounded by the pattern of the organic resin protection film 11. (Sato; FIGs. 5G and 5H; column 25, lines 53-56). Finally, in the active matrix substrate of Sato, pixel electrodes 12 are formed to cover the color ink and part of the organic resin protection film 11. (Sato; FIGs. 4 and 5I; column 24, lines 35-39).

However, in the active matrix substrate of Sato, edge portions of a top surface of the color pixel portion 13 and respective edge portions of a top surface of the organic resin protection film

11 are **not** substantially planar. (Sato; FIGs. 4 and 5I, references 11, 12, and 13). As seen in FIG. 4 of Sato, the edge portions of the top surface of the color pixel portion 13 in the active matrix substrate of Sato are **lower than** the respective edge portions of the top surface of the organic resin protection film 11. (Sato; FIGs. 4 and 5I, references 11, 12, and 13). As a result, in the device of Sato, additional material for the pixel electrode 12 must be applied to fill in a gap between the edge portions of the top surface of the color pixel portion 13 and the respective edge portions of the top surface of the organic resin protection film 11. (Sato; FIGs. 4 and 5I).

Therefore, independent claim 1, as amended, is neither disclosed nor suggested by the cited prior art and, hence, is believed to be allowable.

Because they depend from claim 1, dependent claims 2-11 and 24 are believed to be allowable for at least the same reasons that claim 1 is believed to be allowable.

Independent claim 12 recites an integrated color filter for a liquid crystal display with features similar to features of a method of fabricating an integrated color filter for a liquid crystal display of independent claim 1. Therefore, independent claim 12 is believed to be allowable for at least the same reasons that claim 1 is believed to be allowable.

Because they depend from claim 12, dependent claims 13-23 and 25 are believed to be allowable for at least the same reasons that claim 12 is believed to be allowable.

In addition, new dependent claim 25 recites the integrated color filter as claimed in claim 12, with the further distinctions:

"wherein each of said switching elements comprises:

a first electrode, said first electrode being a gate electrode;

a second electrode;

a third electrode; and

an insulating layer covering said second and third electrodes, said insulating layer having a via passing through said insulating layer from a top surface of said insulating layer to one of said second and third electrodes; and

wherein said protruding pattern has respective contact holes that are aligned with corresponding vias in the insulating layer of respective switching elements."

An integrated color filter including the above-quoted features has the additional advantage that an insulating layer of each switching element that covers a second and third electrode has a via passing from a top surface to one of said second and third electrodes. Also, the protruding pattern has contact holes that are aligned with corresponding vias in the insulating layer of respective switching elements. Thus, the second and third electrodes of each switching element can be covered with an insulating layer except for a portion of one of the second and third electrodes that is exposed by the via and is aligned with a contact hole in the protruding pattern, so that a pixel electrode can be formed in the contact hole and contact the electrode under the via in the insulating layer. Such a feature is shown, for example, in Figure 4 of applicant's application in which an insulating layer is formed over a source and a drain electrode and a via is formed in the insulating layer that is aligned with a contact hole of the protruding pattern, thus allowing for the pixel electrode to be formed in the via of the insulating layer. The insulating layer that covers the source and drain electrodes must be insulating, so that the source and drain electrodes are not electrically in contact with each other and can function as two separate electrodes. (Specification; paragraph [0029]; FIG. 4, references 21', 25a, 25b, 31, 32).

Sato neither discloses nor suggests an integrated color filter including the above-quoted features. As shown in FIG. 2 of Sato, the active matrix substrate of Sato does **not** have an **insulating layer** over the drain electrode 9b. (Sato; FIG. 2, references 9b, 11', 12). Thus, in the active matrix substrate of Sato, there is **no** insulating layer with a via aligned with the contact hole 11' over the drain electrode 9b. (Sato; FIG. 2; column 23, line 63 to column 24, line 15).

Therefore, new dependent claim 25 is believed to be allowable for at least that additional reason.

New dependent claim 24 depends from claim 1 and recites a method with features similar to features of an integrated color filter of claim 25. Therefore, new dependent claim 24 is believed to be allowable for at least the same additional reasons that claim 25 is believed to be allowable.

Conclusion:

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-0872. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-0872. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-0872.

Respectfully submitted,

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